PRELIMINARY DRAINAGE REPORT
First Submittal

For

CHRISTIAN BROTHERS AUTOMOTIVE CORPORATION
CBAC
11416 EAST DESERT COVE AVENUE
SCOTTSDALE, ARIZONA

Plan # _____
Case # 59-DR-2015
Q-S # _____
☑ Accepted
☐ Corrections
DG 5/20/16
Reviewed By Date

May, 2016

Project No.: 2073

Prepared for:

CHRISTIAN BROTHERS AUTOMOTIVE CORPORATION
17725 KATY FREEWAY, SUITE 200
HOUSTON, TX 77094

Prepared by:

Site Consultants, Inc.
Engineers • Surveyors • Consultants
113 South Rockford Drive • Tempe, AZ 85281
Tel (480) 894-2820 • Fax (480) 894-2847

21-ZN-2015
5/10/16

TABLE OF CONTENTS

ATTACHMENTS

Attachment No. 1	Vicinity Map
Attachment No. 2	Approved Site Plan
Attachment No. 3	Topographic Map
Attachment No. 4	Final Drainage Report – Shea Garden Nursey
Attachment No. 5	NOAA Atlas 2014 – Rainfall Precipitation Data
Attachment No. 6	FIRM Map
Attachment No. 7	(1st Folder) Preliminary Grading, Drainage & Paving Plan.
Attachment No. 8	(2nd Folder) Aerial Map
Attachment No. 9	(3rd Folder) City Topographic Map

Exp 3-31-2019

Site Consultants, Inc.

Engineers • Surveyors • Consultants

113 South Rockford Drive • Tempe, AZ 85281

Tel (480) 894-2820 • Fax (480) 894-2847

Note: This page left intentionally blank for future use!

Site Consultants, Inc.

Engineers • Surveyors • Consultants
113 South Rockford Drive • Tempe, AZ 85281
Tel (480) 894-2820 • Fax (480) 894-2847

1.0 INTRODUCTION AND SCOPE OF WORK

This report presents the results of a drainage study conducted by Site Consultants, Inc. (SCI) at the request of Christian Brothers Automotive Corporation (client) for a new Christian Brothers Automotive Center (CBAC) located at NEC Frank Lloyd Wright Boulevard and Desert Cove Avenue (site). The purpose of this report is to provide an analysis of the proposed site re-development's impact, if any, on the existing site developments off-site and on-site drainage patterns and existing on-site retention facilities

1.1 Scope of Work and Limitations

This report is focused on providing practical design information, evaluation, and calculations for statistical flood events up to and including the 100-year frequency flood. The procedures used herein are derived from, and performed with, currently accepted engineering methodologies and practices. Additionally, the criterion for this evaluation is designed to conform to currently applicable ordinances, regulations and policies affected by the appropriate jurisdictional regulatory authorities for the site.

The analysis presented herein focuses on developing design estimates of stormwater runoff resulting from a statistical evaluation of storm events of particular duration and frequency up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency event may cause or create the risk of greater flood impact than is addressed and presented herein. However, the scope of this assessment does not include, neither did the client request, evaluation of stormwater runoff resulting from storm events exceeding the 100-year frequency event. Site Consultants, Inc. assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development cost resulting from or related to any such events. Nor shall SCI be responsible for any changes in or additions to, regulatory requirements that may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

In performing the services contained herein, SCI has or will receive information prepared or compiled by others. SCI as engineering professionals, are not required to verify the information, but may rely on the information unless actual knowledge concerning the validity of the information is known or is obvious to the professional. Therefore, SCI is entitled to rely upon the accuracy and completeness of this information without independent evaluation or verification.

1.2 Site Location

The 1.33 net acre site is located at NEC Frank Lloyd Wright Boulevard and Desert Cove Avenue (site). The site is located in the southwest quarter of Section 22 of Township 3 North, Range 5 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site can also be identified by the physical address 11416 East Desert Cove Avenue, Scottsdale, Arizona. The site is bounded on the north and east by Equestrian Apartments, on the south by East Desert Cove Avenue and on the west by Frank Lloyd Wright Boulevard.

See Attachment No. 1 for Vicinity Map.

1.3 Existing Site Development Improvements

The site is currently development and being operated as a nursey. Shea Gardens Nursey site improvements include a building, shade canopy structures, paved asphalt parking lot and surface landscape retention basin.

Existing site development also includes three electric towers (2 – APS & 1 – SRP), cell tower equipment building.

1.4 Proposed Site Development Description

The proposed development for this parcel consists of the demolition of the existing on-site nursey facility improvements. The existing electric towers and cell tower equipment building will remain.

Two new single story buildings (1 vehicle service & 1 administration) will be constructed along with associated pavement parking lot, trash enclosure, associated landscape areas and a pedestrian access connection to the City right-of-way and permanent on-site underground retention basin.

See Attachment No. 2 for "Site Plan".

1.5 Regulatory Jurisdiction

The criterion used in the drainage design and analysis of the site was established using the guidelines as described in the following:

- *Drainage Standards and Policies Manual for City of Scottsdale, dated, January 2010.* **(Reference 1).**

2.0 PHYSICAL SETTING

2.1 Existing Site Topography

As noted in Section 1.3 the proposed site is currently being utilized as a nursey facility. The site generally slopes from the westerly property line (elevation 1469-feet) to southwest corner of site (elevation 1461-feet) with an approximate average slope of 2.4 percent.

The site has a landscape area along it's Frank Lloyd Wright Boulevard; based on the original drainage report prepared in conjunction with the 1993 nursey improvement plans, portions of the said landscape area was previously utilized as a retention basin, however, only a small depression in the basin area appears to remain.

See Attachment No. 3 for development area topographic map.

3.0 MANAGEMENT OF OFF-SITE STORMWATER RUNOF

3.1 Off-Site Flows:

The Equestrian Apartments located to the north and west of the proposed development has existing on-site stormwater retention facilities design for 100 year – 1 hour storm event based on Pre-Development versus Post Development conditions. Two offsite washes pass through the Equestrian Apartments one wash is pipe through the development the other is conveyed thorough the parking lot drive areas. The two flows from the wash converge at a point along the western property line of the Equestrian Apartments located north of the proposed CBAC development. The flows are conveyed to the southwest under Frank Lloyd Wright Boulevard via two (2) – 24-inch concrete

pipe. The pipes discharge into a survey wash at the southwest corner of Frank Lloyd Wright Boulevard and East Desert Cove Avenue.

The apartment complex has two primary drainage areas; the north drainage area outfalls into the said wash flow convergence location; the southern drainage area outfalls into East Desert Cove Avenue at the southwest corner of the apartment complex.

Offsite site flows from Frank Lloyd Wright Boulevard are conveyed south past the site via existing curb and gutter. Offsite site flows from East Desert Cove Avenue are conveyed west past the site via existing curb and gutter.

4.0 MANAGEMENT OF ON-SITE STORMWATER RUNOFF

4.1 Existing On-Site Hydrology – Redevelopment Area

According to the drainage report of the existing Shea Garden nursey prepared by Wiley & Associates, Inc. date November 1st, 1993; the existing site development was designed to retain 7,116 cf. of stormwater retention in a surface landscape basin. Said basin outfalls into Frank Lloyd Wright Boulevard at approximately 90-feet north of the East Desert Cove intersection. Although not specified in the drainage report the computed stormwater retention volume appears to be based on a 100-yr, 2-hr storm event. The retention required calculation used a weighted runoff coefficient of 0.52 and a rainfall intensity of 2.82.

See Attachment No. 4 for Final Drainage Report for Shea Gardens nursey.

4.2 Proposed On-Site Hydrology – Redevelopment Area

The proposed CBAC development will include the construction of permanent on-site stormwater retention facilities. Specifically said permanent on-site retention facilities will be sized to retain 100 percent of the 100 year – 2 hour storm event based on NOAA Atlas 2014 precipitation data. The storage facilities will be approximately 200 –lf of 8-foot diameter underground pipe.

4.2.1 Retention Calculations

The criteria used in the drainage design and analyses of the site were established using the guidelines as described in the following:

The required retention volumes were computed using the City of Scottsdale formula, Vr= C*(P/12) *A, to determine the required volume, where:
D = 2.30/12
C = 0.90
*A = On-site Drainage Area (sf): Total = 57,936, sf

RETENTION VOLUME REQUIRED CALCULATIONS

DRAINAGE AREA (DA)	"C"	"P"	AREA (SF)	VOLUME REQUIRED (cf)
Net Site	0.9	2.30	57,936	9,994
TOTAL				**9,994**

See Attachment No. 5 for NOAA 2014 Rainfall Precipitation Data.

RETENTION VOLUME PROIVDED CALCULATIONS

172 L.F. of 8-ft dia. Pipe = 3.14 x 16 x 200 l.f. = **10,014 cf.**

Total Retention Provided = 10,031

RETENTION VOLUME DISSIPATION CALCULATIONS

DRAINAGE AREA (DA)	RETENTION VOLUME (CF)	DRYWELL DISSIPATED RATE 0.1 CFS	CALCULATION Volume / Dissipation Rate	NUMBER WELLS REQUIRED
Net Site Area	10,031	12,960 cf / 36 hrs / well	10,014 / 12,960	0.8 use **1**
TOTAL				**1 wells**

4.3 Special Conditions

No know special conditions at this time.

5.0 FLOOD ZONE INFORMATION

The Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (FIRM) map number 04013C1780L, dated October 16, 2013, indicates that the site falls within Zone 'X'. Zone 'X' is defined by FEMA as:

> *Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.*

See Attachment No. 6 for Firm Map.

6.0 ESTIMATED REMAINING UNDERGROUND STORAGE TANK LIFE

TO BE DETERMINED

7.0 SUMMARY AND CONCLUSIONS

1. Proposed site outfall elevation location into Frank Lloyd Wright Boulevard is in approximately the same location as the existing development.

2. Proposed site outfall elevation is 1463.00 – feet.
3. Proposed finished floor Elevations are for structures are 1466.00 – feet which is 2.0-feet above the proposed site outfall elevation.
4. Stormwater runoff from the proposed site development area will not be increased.
5. Permanent proposed stormwater retention facilities exceed the existing on-site stormwater retention, therefore the stormwater runoff from the site development should decrease.

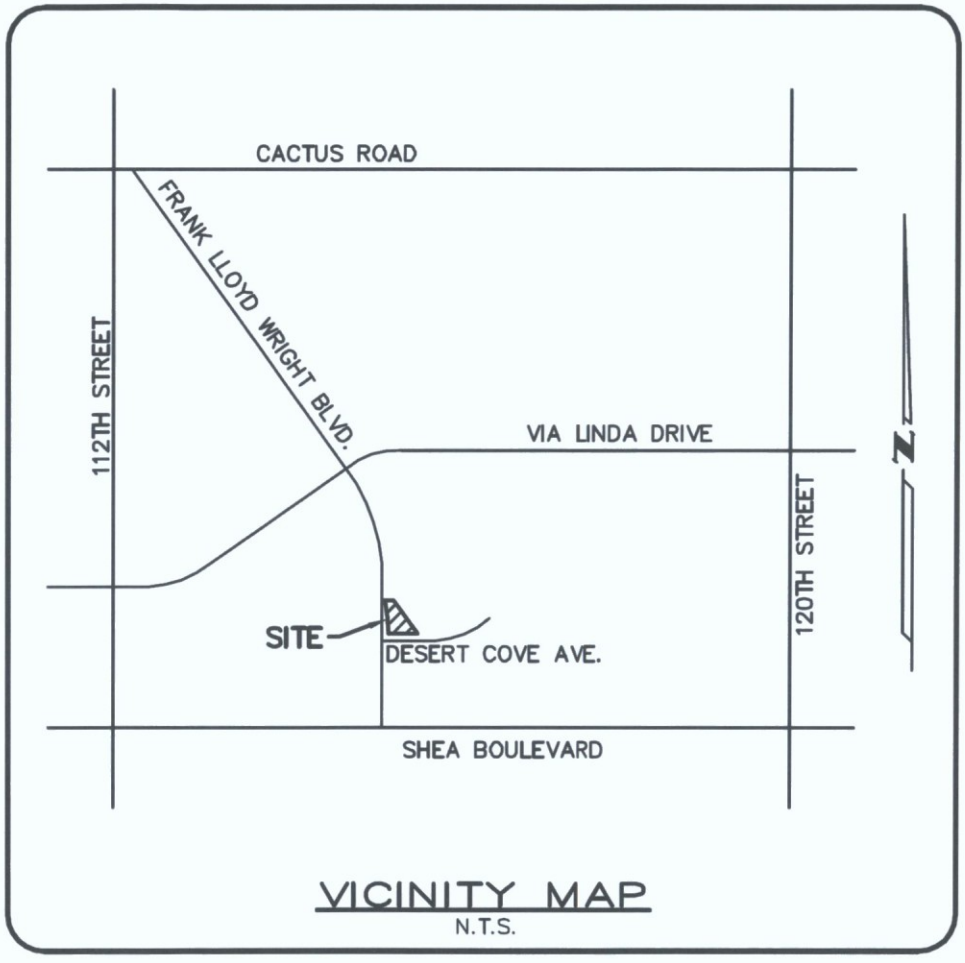
8.0 REFERENCES CITED AND REVIEWED

1. *City of Scottsdale Case Number 51-DR-85. Drainage Report / Grading Plans prepared for "The Equestrian Apartments", prepared by Drew-Nykorchuk, dated July 1st, 1985.*
2. *City of Scottsdale Case Number 127-DR-88#3. Hydrology Report for Shea Gardens Nursey, prepared by Wiley & Associates, Inc. dated November 1st, 1993.*
3. *Flood Insurance Rate Map (FIRM) Maricopa County, Arizona and Incorporated Areas, Map Number 04013C1480L, Federal Emergency Management Agency, November 16, 2013.*
4. *NOAA Atlas 14, Volume 1, Version 5 "Point Precipitation Frequency Estimates"*

This document was prepared by the following:

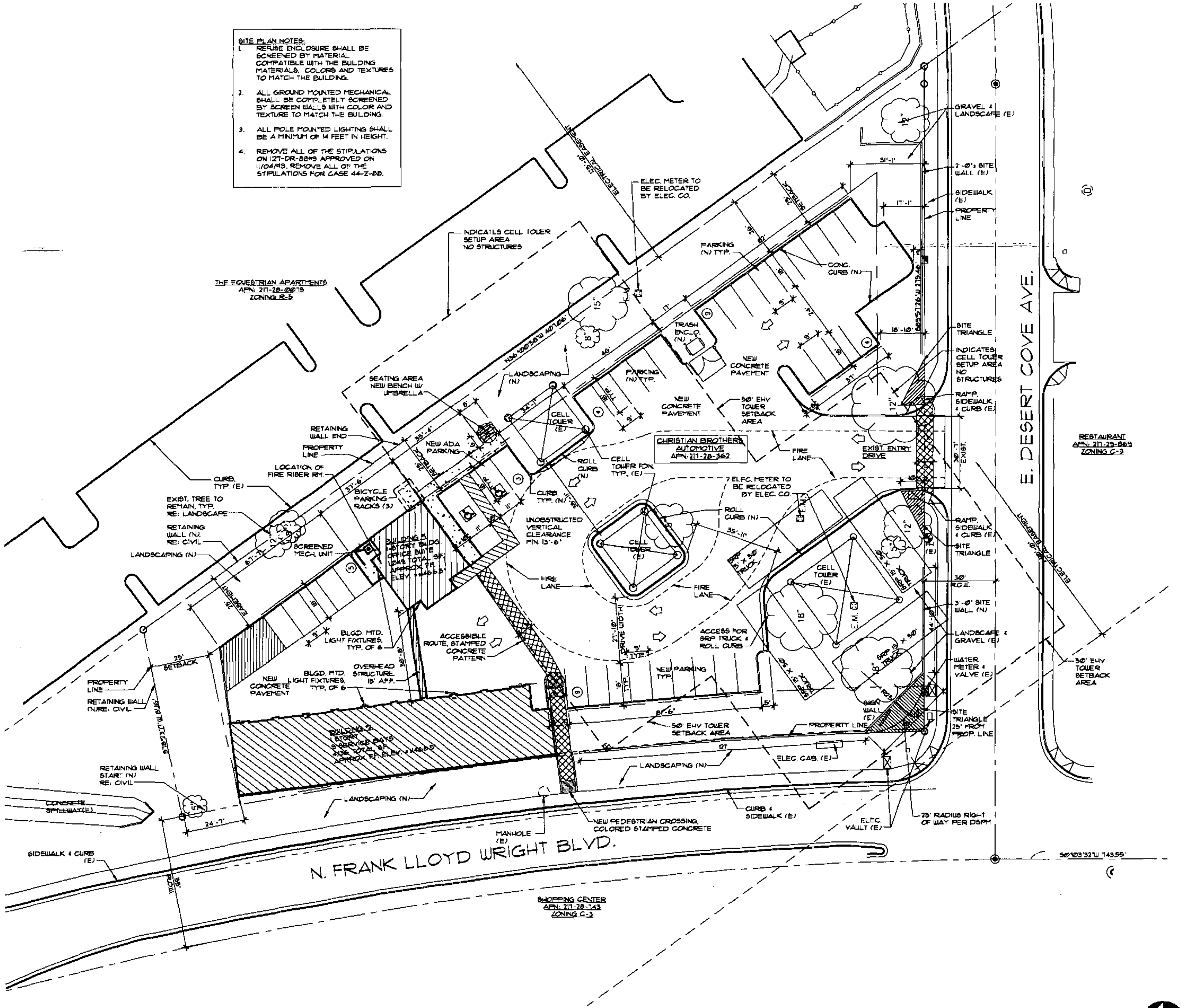
Printed/Typed Name: Michael J. Caylor, P.E.

Date: May, 2016



VICINITY MAP

N.T.S.



1 Site Plan - CBAC 9 Bay + Office/Service Suite

NORTH

1" = 20'-0"

0' 20' 40' 80' 160'

PROJECT INFORMATION:

TENANT: COMMERCIAL TENANT
CHRISTIAN BROTHERS AUTOMOTIVE

ADDRESS: 11416 E. DESERT COVE AVE.
SCOTTSDALE, AZ 85259

OWNER: CHRISTIAN BROTHERS AUTOMOTIVE
15995 N. BARKERS LANDING RD, SUITE 145
HOUSTON, TX 77079

SCOPE: AUTO REPAR FACILITY

PROJECT DESCRIPTION:
NEW 2 BUILDINGS 7,085 SQ. FT. AUTOMOTIVE REPAIR

SITE AREA (GROSS) = 57,990 SQ. FT. (1.33 ACRES)
(NET-MINUS CELL TOWERS = 55,811 SQ. FT. (1.28 ACES)

PROPOSED USE: COMMERCIAL

ZONING: C-3

ALLOWABLE BUILDING AREA:
CONSTRUCTION TYPE VB - FULLLY SPRINKLERED
OCCUPANCY GROUP: S-1, AUTOMOTIVE REPAIR
B, OFFICE SPACE
BASIC ALLOWABLE AREA: 9000 SQ. FT.
IBC 2012, SECTION 507

BUILDING AREA:	BUILDING #1 (OFFICE) AREA	1,049 S.F.
	BUILDING #2 (TECH) AREA	4,136 S.F.
	TOTAL BUILDING AREA	5,185 S.F.
	DUMPSTER AREA:	132 S.F.
	SITE AREA:	57,990 S.F.
	LOT COVERAGE:	9.2%

LANDSCAPED AREA: NOT LESS THAN 25% OF DEVELOPMENT PARCEL FRONTAGE (DESERT COVE AVE.) NOT LESS THAN 50% OF TOTAL LANDSCAPE AREA

LEGAL DESCRIPTION:
BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 3 NORTH, RANGE 5 EAST, OF THE GILA & SALT RIVER BASE & MERIDIAN, RECORDS OF MARICOPA COUNTY, ARIZONA.
APN: 217-28-362.

SETBACKS:
FRANK LLOYD WRIGHT BLVD. FRONTAGE 20'-0"
DESERT COVE AVE. FRONTAGE 0'-0"
REAR YARD 25'-0"
SIDE YARD - ADJACENT TO RESIDENCE 25'-0"

PARKING REQUIRED: CITY OF SCOTTSDALE
3 PARKING SPACES PER SERVICE BAY AND ONE SPACE PER 250 SQUARE FEET OF ACCESSORY RETAIL SALES GROSS FLOOR AREA AND 300 SQUARE FEET OF ACCESSORY OFFICE GROSS FLOOR AREA. EACH SERVICE BAY COUNTS FOR ONE OF THE REQUIRED PARKING SPACES.

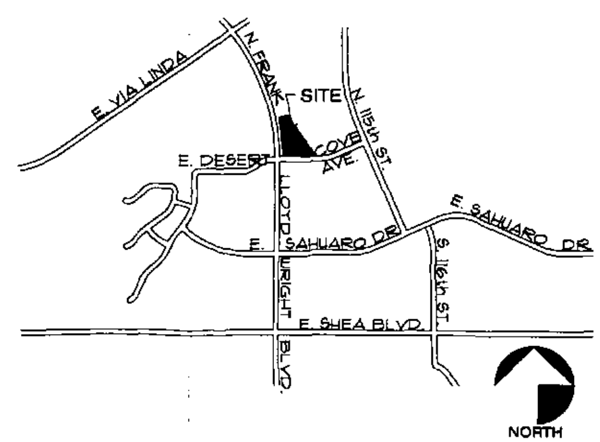
PARKING CALCULATIONS:
9 BAYS X 3 SPACES = 27 SPACES - 9 BAYS = 18 SPACES
82 S.F. OF GROSS RETAIL SPACE = 1 SPACE
TOTAL PARKING SPACES REQUIRED = 19 SPACES

TOTAL PARKING SPACES PROVIDED = 30 SPACES W/ 2 ADA

BICYCLE PARKING: PER SECTION 9.103
REQUIRED: 1 BIKE SPACE/10 VEHICULAR SPACES
MIN. OF 2, NO MORE THAN 100 BICYCLE PARKING SPACES
30 SPACES/10: 3 BIKE SPACES
PROVIDED: 6 BIKE SPACES (3 RACKS)

FIRE NOTES:
UNOBSTRUCTED VERTICAL CLEARANCE MINIMUM = 13'-6"
FIRE LANE SURFACE WILL SUPPORT 83,000 LBS.
MINIMUM DRIVE WIDTH = 24'-0"

CODE SUMMARY & ADOPTING ORDINANCES:
ALL CONSTRUCTION SHALL COMPLY WITH THE CITY OF SCOTTSDALE LOCAL ORDINANCES AND CODES.



360
STEWART + REINDERSMA ARCHITECTURE, PLLC
5450 e high street, suite 200
phoenix, arizona 85054
p: 480.515.5123 f: 602.513.7193
www.sra360.com

architect

contact
Christian Brothers Automotive
17725 Katy Freeway suite 200
Houston, TX 77074
contact curtis cain
t (281) 675-6105
c (832) 971-1123
email ccain@cbac.com

project
Christian Brothers Automotive
11416 E. Desert Cove Ave.
Scottsdale, Arizona 85259

This drawing is an instrument of service and the property of Stewart + Reindersma Architecture, pllc, and shall remain their property. The use of this drawing shall be restricted to the original use for which it is prepared and publication thereof is expressly limited to such use.

date: 5/12/2016
issued for: SITE PLAN SUBMITTAL
job no.: 15-064
sheet title: SITE PLAN
sheet no.: as.1

CHRISTIAN BROTHERS AUTOMOTIVE CORPORATION

ALTA/ACSM LAND TITLE SURVEY

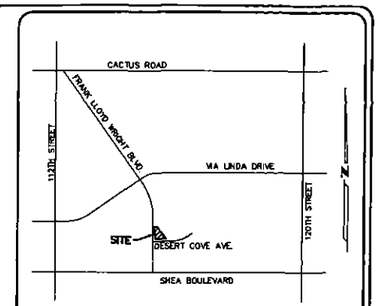
BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 3 NORTH, RANGE 5 EAST, OF THE GILA & SALT RIVER BASE & MERIDIAN, MARICOPA COUNTY, ARIZONA

PREPARED FOR

CHRISTIAN BROTHERS AUTOMOTIVE CORPORATION
17725 KATY FREEWAY, SUITE 200
HOUSTON, TX 77094
CONTACT: CURTIS CAIN

SURVEYOR

SITE CONSULTANTS, INC.
113 SOUTH ROCKFORD DRIVE
TEMPE, ARIZONA 85281
TELE: 480-894-2820
CONTACT: GARY STOCKER, R.L.S.



VICINITY MAP
N.T.S.

TITLE NOTE

THE RECORD DOCUMENTS NOTED ON THIS PLAT OF SURVEY ARE THOSE DOCUMENTS, AND ONLY THOSE DOCUMENTS, DETERMINED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY AND SET FORTH IN ORDER NO. 39002742-039-PC, WITH AN EFFECTIVE DATE OF JULY 9, 2015. AS AFFECTING THE PROPERTY DEPICTED ON THIS LAND TITLE SURVEY. BY NOTING SAID DOCUMENTS ON THIS PLAT OF SURVEY, THE UNDERSIGNED SURVEYOR MAKES NO REPRESENTATION AS TO THE EXISTENCE OF ANY OTHER RECORD DOCUMENTS THAT MAY AFFECT THE SURVEYED PROPERTY. RECORD DIMENSIONS SHOWN HEREON ARE FROM THE PROPERTY DESCRIPTION INCLUDED IN SAID TITLE COMMITMENT, UNLESS OTHERWISE NOTED.

SURVEY RELATED ITEMS

(PER SCHEDULE B OF TITLE REPORT REFERENCED HEREON)

(4) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS DISCLOSED IN DOCUMENT:

PURPOSE: ROADS, DICHES AND POWER LINES
RECORDING DATE: MAY 31, 1949
RECORDING NO.: DOCKET 394, PAGE 386

(5) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT:

PURPOSE: ELECTRIC LINES
RECORDING DATE: MARCH 18, 1973
RECORDING NO.: DOCKET 10046, PAGE 1347

(6) EASEMENTS, COVENANTS, CONDITIONS AND RESTRICTIONS AS SET FORTH ON THE PLAT OF DEDICATION FOR SCOTTSDALE NORTHEAST RECORDED AUGUST 25, 1982 IN BOOK 244 OF MAPS, PAGE 28 AND AS SHOWN IN MAP OF DEDICATION FOR ADOBE RANCH RECORDED JUNE 5, 1986 IN BOOK 298 OF MAPS, PAGE 38. (BOTH MAPS REFLECT EASEMENTS 4 & 5 NOTED HEREON)

9. MATTERS SHOWN ON RECORD OF SURVEY:

RECORDING NO.: BOOK 999 OF MAPS, PAGE 34

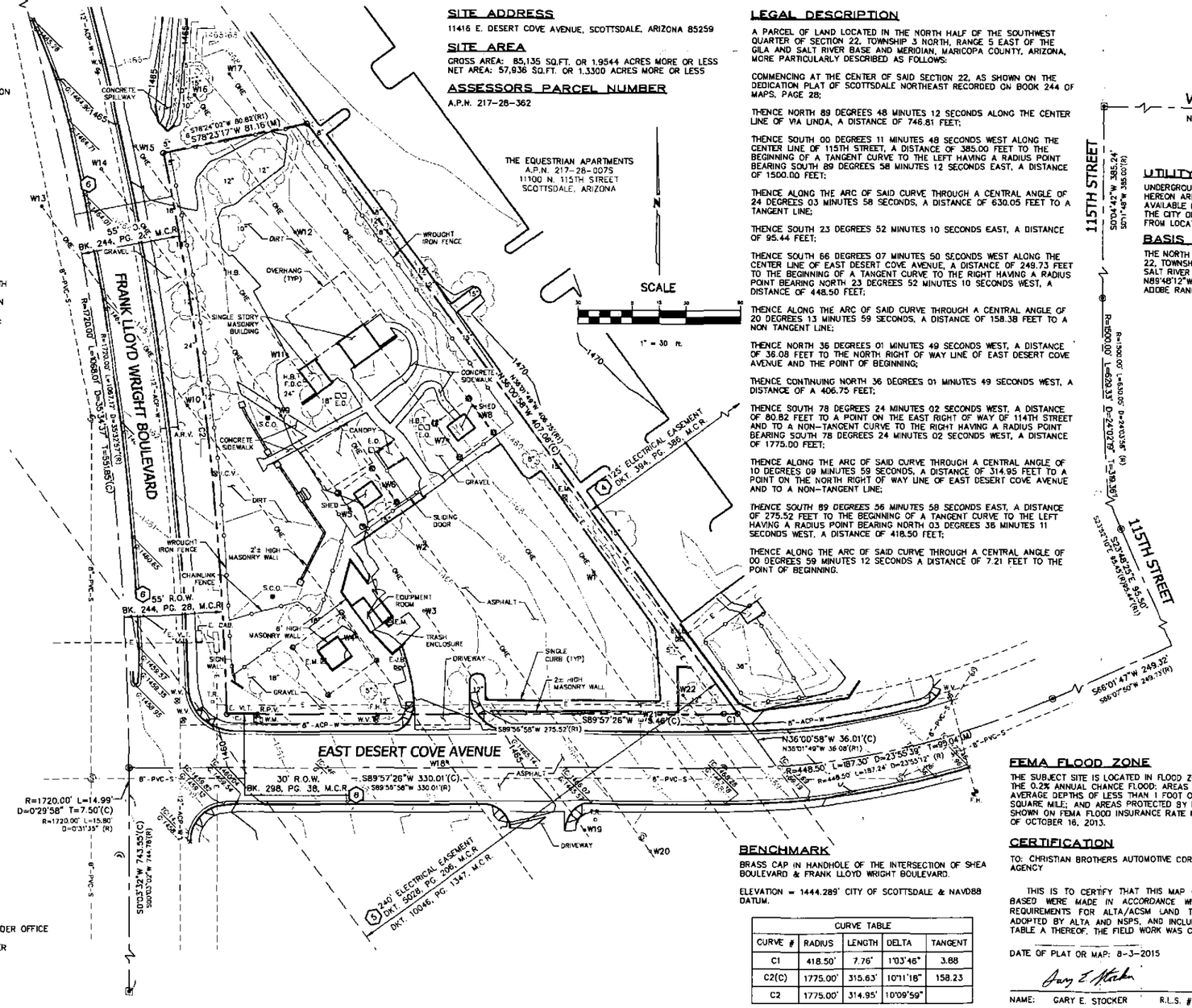
REFERENCE DOCUMENTS

1. (R) MAP OF DEDICATION FOR ADOBE RANCH, BOOK 298, PAGE 39, M.C.R.
2. (R1) SPECIAL WARRANTY DEED, RECEPTION NO. 20010800115
3. DEDICATION PLAT FOR SCOTTSDALE NORTHEAST, BOOK 244 OF MAPS, PAGE 28, M.C.R.
4. RECORD OF SURVEY PER BOOK 999, PAGE 34, M.C.R.

NOTE: MEASURED AND/OR CALCULATED BEARINGS AND DISTANCES SHOWN HEREON ARE PER RECORD OF SURVEY, BOOK 999, PAGE 34, M.C.R.

LEGEND

PROPERTY LINE	
RIGHT OF WAY LINE	
CENTER LINE	
EASEMENT LINE	
1180 CONTOUR LINE	
12" - DIP - W UNDERGROUND UTILITY	
EDGE OF PAVEMENT	
C.T.V. CABLE TV RISER	W.M. WATER METER
U UNDERGROUND ELECTRIC	W.S. WATER SERVICE
E.CAB. ELECTRIC CABINET	W.V. WATER VALVE
E.J.B. ELECTRIC J-BOX	F.H. FIRE HYDRANT
E.M. ELECTRIC METER	R.P.V. REDUCE PRESSURE VAVLE
E.O. ELECTRIC OUTLET	H.B. HOSE BIB
E.VLT. ELECTRIC VUALT	SAGUARO CACTUS
OHE OVERHEAD ELECTRIC	C.O.S. CITY OF SCOTTSDALE
S.L.J.B. POWER POLE W/LIGHT	BK. BOOK
STREET LIGHT W/ MAST ARM	PG. PAGE
STREET LIGHT	(R&M) RECORD & MEASURED
I.C.V. IRRIGATION CONTROL VALVE	R.O.W. RIGHT OF WAY
S UNDERGROUND SEWER	M.C.R. MARICOPA COUNTY RECORDER OFFICE
S.C.O. SEWER CLEAN-OUT	A.P.N. ASSESSOR PARCEL NUMBER
SEWER MANHOLE	A.R.V. AIR RELEASE VALVE
DRAIN MANHOLE	
W UNDERGROUND WATER	



SITE ADDRESS

11416 E. DESERT COVE AVENUE, SCOTTSDALE, ARIZONA 85259

SITE AREA

GROSS AREA: 85,135 SQ.FT. OR 1.9544 ACRES MORE OR LESS
NET AREA: 57,936 SQ.FT. OR 1.3300 ACRES MORE OR LESS

ASSESSORS PARCEL NUMBER

A.P.N. 217-28-362

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 3 NORTH, RANGE 5 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE CENTER OF SAID SECTION 22, AS SHOWN ON THE DEDICATION PLAT OF SCOTTSDALE NORTHEAST RECORDED ON BOOK 244 OF MAPS, PAGE 28;

THENCE NORTH 89 DEGREES 48 MINUTES 12 SECONDS ALONG THE CENTER LINE OF VIA LINDA, A DISTANCE OF 746.81 FEET;

THENCE SOUTH 00 DEGREES 11 MINUTES 48 SECONDS WEST ALONG THE CENTER LINE OF 115TH STREET, A DISTANCE OF 385.00 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE LEFT HAVING A RADIUS POINT BEARING SOUTH 89 DEGREES 58 MINUTES 12 SECONDS EAST, A DISTANCE OF 1500.00 FEET;

THENCE ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 24 DEGREES 03 MINUTES 58 SECONDS, A DISTANCE OF 630.05 FEET TO A TANGENT LINE;

THENCE SOUTH 23 DEGREES 52 MINUTES 10 SECONDS EAST, A DISTANCE OF 95.44 FEET;

THENCE SOUTH 66 DEGREES 07 MINUTES 50 SECONDS WEST ALONG THE CENTER LINE OF EAST DESERT COVE AVENUE, A DISTANCE OF 249.73 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE RIGHT HAVING A RADIUS POINT BEARING NORTH 23 DEGREES 52 MINUTES 10 SECONDS WEST, A DISTANCE OF 448.50 FEET;

THENCE ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 20 DEGREES 13 MINUTES 59 SECONDS, A DISTANCE OF 158.38 FEET TO A NON TANGENT LINE;

THENCE NORTH 36 DEGREES 01 MINUTES 49 SECONDS WEST, A DISTANCE OF 36.08 FEET TO THE NORTH RIGHT OF WAY LINE OF EAST DESERT COVE AVENUE AND THE POINT OF BEGINNING;

THENCE CONTINUING NORTH 36 DEGREES 01 MINUTES 49 SECONDS WEST, A DISTANCE OF A 406.75 FEET;

THENCE SOUTH 78 DEGREES 24 MINUTES 02 SECONDS WEST, A DISTANCE OF 80.82 FEET TO A POINT ON THE EAST RIGHT OF WAY OF 114TH STREET AND TO A NON-TANGENT CURVE TO THE RIGHT HAVING A RADIUS POINT BEARING SOUTH 78 DEGREES 24 MINUTES 02 SECONDS WEST, A DISTANCE OF 1775.00 FEET;

THENCE ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 10 DEGREES 09 MINUTES 59 SECONDS, A DISTANCE OF 314.95 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF EAST DESERT COVE AVENUE AND TO A NON-TANGENT LINE;

THENCE SOUTH 89 DEGREES 56 MINUTES 58 SECONDS EAST, A DISTANCE OF 275.52 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE LEFT HAVING A RADIUS POINT BEARING NORTH 03 DEGREES 38 MINUTES 11 SECONDS WEST, A DISTANCE OF 418.50 FEET;

THENCE ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 00 DEGREES 59 MINUTES 12 SECONDS A DISTANCE OF 7.21 FEET TO THE POINT OF BEGINNING.

BENCHMARK

BRASS CAP IN HANDHOLE OF THE INTERSECTION OF SHEA BOULEVARD & FRANK LLOYD WRIGHT BOULEVARD.

ELEVATION = 1444.289' CITY OF SCOTTSDALE & NAVD88 DATUM.

CURVE TABLE

CURVE #	RADIUS	LENGTH	DELTA	TANGENT
C1	418.50'	7.76'	1°03'46"	3.88
C2(C)	1775.00'	315.63'	10°11'18"	158.23
C2	1775.00'	314.95'	10°09'59"	

VIA LINDA DRIVE
N89°48'12"W (BASIS OF BEARING)
746.83'(M) 748.80'(R) 746.81'(R1)

UTILITY NOTE

UNDERGROUND UTILITIES & STORM DRAIN LOCATIONS SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS AND AVAILABLE MAPS OBTAINED FROM UTILITY COMPANIES AND THE CITY OF PEORIA, AZ.. ACTUAL LOCATIONS MAY VARY FROM LOCATIONS SHOWN HEREON.

BASIS OF BEARING

THE NORTH LINE OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 3 NORTH, RANGE 5 EAST OF GILA AND SALT RIVER BASE AND MERIDIAN THE SAID LINE BEARS N89°48'12"W, AS SHOWN PER MAP OF DEDICATION FOR ADOBE RANCH RECORDED IN BOOK 298, PAGE 38, M.C.R.

WIRE ELEVATION TABLE

POINT #	WIRE ELEVATION
W1	1531.0
W2	1536.9
W3	1533.3
W4	1555.0
W5	1541.4
W6	1541.3
W7	1542.8
W8	1542.4
W9	1533.8
W10	1535.2
W11	1530.8
W12	1537.3
W13	1522.2
W14	1517.3
W15	1517.2
W16	1519.0
W17	1519.2
W18	1544.5
W19	1518.5
W20	1516.5
W21	1523.8
W22	1523.5

FEMA FLOOD ZONE

THE SUBJECT SITE IS LOCATED IN FLOOD ZONE "X", BEING DESCRIBED AS "AREAS OF THE 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD, AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP NO. 04013C1780L, WITH A REVISED DATE OF OCTOBER 16, 2013.

CERTIFICATION

TO: CHRISTIAN BROTHERS AUTOMOTIVE CORPORATION AND FIDELITY NATIONAL TITLE AGENCY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 8, 11(B), AND 16 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JULY 30, 2015.

DATE OF PLAT OR MAP: 8-3-2015

NAME: GARY E. STOCKER R.L.S. #17516

REV.
REV.
REV.
REV.
REV.

Site Consultants, Inc.
ENGINEERS · SURVEYORS · CONSULTANTS
113 SOUTH ROCKFORD DRIVE, TEMPE, ARIZONA 85281
TELE: (480) 894-2820, FAX: (480) 894-2847

ALTA/ACSM TITLE SURVEY
CHRISTIAN BROTHERS AUTOMOTIVE CORPORATION
11416 E. DESERT COVE AVENUE
SCOTTSDALE, ARIZONA

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
17516
GARY E. STOCKER
ARIZONA U.S.A.
EXPIRES 6-30-2016

PROJECT NO.:	2073
SCALE:	1" = 30'
DRAWN BY:	NTO
CHECKED BY:	GES
DATE:	8-4-2015
DWG:	2073-V-ALTA

127-DR-88 #3

00503

HYDROLOGY REPORT

FOR

SHEA GARDENS
IN THE S.W.1/4 OF SEC.22 T3N R5E
WILEY & ASSOCIATES JOB # 4430

PREPARED FOR:
TIM TOLMAN
1134 E. NANCY LANE
PHOENIX, ARIZONA 85040

Modified 12-1-93

WILEY & ASSOCIATES, INC.
SURVEYORS & ENGINEERS
3200 N. HAYDEN ROAD
SUITE B-200
SCOTTSDALE, AZ. 85251

OFF-SITE DRAINAGE

This project is located at the Northeast Corner of Frank Lloyd Wright Boulevard and Desert Cove, runoff flows from East to West.

The East line of this project is bordered by the parking lot and retention basin for Scottsdale Equestrian Apartments, effectively eliminating all off site drainage.

Runoff for Desert Cove is directed West to Frank Lloyd Wright Boulevard which directs runoff to the South.

ON-SITE RUNOFF

On-site runoff for this project is directed West and South to a retention basin at the Southwest corner of the property (see sketch, page 2). See retention basin storage, page 5. Ultimate lot overflow shall be into Frank Lloyd Wright boulevard via retention basin overflow (see sketch, page 2, see rational calc.s page 3 & 4).

The Finish Flood shall be free from inundation from a one hundred (100) year storm.

WILEY & ASSOCIATES, INC.
Surveyors — Engineers
3200 N. Hayden Road
Scottsdale, Arizona 85251

POOR QUALITY ORIGINAL

FRANK LLOYD WRIGHT BLVD.

2880 CF

4736 CF

Lot outfall

EXTRUDED CURB

EXIST A.C.

N.T.S.

DESERT COVE

30' RIGHT OF WAY
BK 298, PG 38

2

HYDROLOGIC DESIGN DATA SHEET
RATIONAL METHOD

WILEY & ASSOCIATES INC.
SURVEYORS AND ENGINEERS
3200 N. HAYDEN RD. #130
SCOTTSDALE, AZ. 85251

LOCATION DATA:

Project: SHEA GARDENS
Location: SEC. 22, T.3 N.,R.5 E.
Project No.: 4430 Station:
Name of Stream: PRE-DEV. Drng.Area: ON-SITE

DESIGN DATA:

Drainage Area:	1.33	acres
Drainage Length:	280.00	feet
Top of Drainage Area	1470.00	feet
Bottom of Drainage Area	1462.00	feet
Drainage Area Slope:	2.8571	%
Time of Concentration (Tc)	2.31	minutes (min. 5 minutes)
Runoff Coefficient (C)	0.35	

DESIGN COMPUTATIONS:

Design Frequency (Yr)	Precipitation Data 6 Hr.	24 Hr.	1 Hr.	Rainfall Intensity (In./Hr.)	Peak Discharge Q = CIA (cfs)
5			1.29	4.5	2
10			1.55	5.8	3
25			1.94	6.7	3
50			2.22	7.8	4
100			2.37	8.3	4
					ERR

REMARKS:

Computed By: B.G. Date: 9-30-93

HYDROLOGIC DESIGN DATA SHEET
RATIONAL METHOD

WILEY & ASSOCIATES INC.
SURVEYORS AND ENGINEERS
3200 N. HAYDEN RD. #130
SCOTTSDALE, AZ. 85251

LOCATION DATA:
Project: SHEA GARDENS
Location: SEC. 22, T.3 N.,R.5 E.
Project No.: 4430 Station:
Name of Stream: PRE-DEV. Drng.Area: ON-SITE

DESIGN DATA:

Drainage Area:	1.33	acres
Drainage Length:	280.00	feet
Top of Drainage Area	1470.00	feet
Bottom of Drainage Area	1462.00	feet
Drainage Area Slope:	2.8571	%
Time of Concentration (Tc)	2.31	minutes (min. 5 minutes)
Runoff Coefficient (C)	0.52	

DESIGN COMPUTATIONS:

Design Frequency (Yr)	Precipitation Data 6 Hr.	24 Hr.	1 Hr.	Rainfall Intensity (In./Hr.)	Peak Discharge Q = CIA (cfs)
5			1.29	4.5	3
10			1.55	5.8	4
25			1.94	6.7	5
50			2.22	7.8	5
100			2.37	8.3	6
					ERR

REMARKS:

Computed By: B.G. Date: 9-30-93

RETENTION CALLLCULATIONS

RETENTION VOLUME = $\frac{D \times A}{12}$ (Cd X Cu)

"C" FACTOR WEIGHTING

17856 S.F. OF PAVEMENT AND ROOF	X .91 =	16249
39960 LANDSCAPING AND NURSERY AREA	X .35 =	13986
		30235 S.F.

$\frac{30235}{57816}$ = .52 WEIGHTED "C" FACTOR

D = 2.37"
A = 57816 SQ. FT.
Cd = .52
Cu = .35

V = $\frac{2.82\ (57816)}{12}$ X .52 = 7065 OF RETENTION REQUIRED

RETENTION PROVIDED

NURSERY AREA	=	2880 CF
SOUTHWEST BASIN	=	4236 CF
TOTAL RETENTION PROVIDED	=	7116 CF

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, US*
Latitude: 33.5866°, Longitude: -111.8341°
Elevation: 1471 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.196 (0.163-0.243)	0.257 (0.214-0.317)	0.346 (0.286-0.427)	0.416 (0.341-0.510)	0.508 (0.410-0.621)	0.579 (0.462-0.703)	0.652 (0.511-0.790)	0.725 (0.559-0.877)	0.823 (0.619-0.996)	0.898 (0.661-1.09)
10-min	0.299 (0.247-0.369)	0.390 (0.325-0.482)	0.527 (0.435-0.649)	0.632 (0.518-0.776)	0.773 (0.625-0.945)	0.882 (0.703-1.07)	0.993 (0.778-1.20)	1.10 (0.851-1.33)	1.25 (0.942-1.52)	1.37 (1.01-1.66)
15-min	0.370 (0.307-0.457)	0.483 (0.403-0.598)	0.654 (0.539-0.805)	0.784 (0.643-0.961)	0.959 (0.774-1.17)	1.09 (0.872-1.33)	1.23 (0.964-1.49)	1.37 (1.05-1.65)	1.55 (1.17-1.88)	1.70 (1.25-2.05)
30-min	0.498 (0.413-0.615)	0.652 (0.543-0.805)	0.880 (0.726-1.08)	1.06 (0.865-1.29)	1.29 (1.04-1.58)	1.47 (1.17-1.79)	1.66 (1.30-2.01)	1.84 (1.42-2.23)	2.09 (1.57-2.53)	2.28 (1.68-2.77)
60-min	0.617 (0.511-0.762)	0.806 (0.672-0.996)	1.09 (0.899-1.34)	1.31 (1.07-1.60)	1.60 (1.29-1.95)	1.82 (1.45-2.21)	2.05 (1.61-2.48)	2.28 (1.76-2.76)	2.59 (1.95-3.13)	2.82 (2.08-3.42)
2-hr	0.721 (0.605-0.868)	0.933 (0.785-1.13)	1.24 (1.04-1.50)	1.48 (1.23-1.78)	1.80 (1.48-2.15)	2.04 (1.65-2.44)	2.30 (1.83-2.74)	2.55 (1.99-3.04)	2.89 (2.21-3.44)	3.15 (2.36-3.78)
3-hr	0.788 (0.661-0.967)	1.01 (0.850-1.24)	1.32 (1.10-1.62)	1.57 (1.30-1.91)	1.91 (1.56-2.32)	2.19 (1.76-2.64)	2.47 (1.95-2.98)	2.77 (2.15-3.33)	3.17 (2.39-3.81)	3.50 (2.58-4.21)
6-hr	0.947 (0.813-1.13)	1.20 (1.03-1.42)	1.53 (1.30-1.81)	1.79 (1.51-2.11)	2.15 (1.80-2.52)	2.43 (2.00-2.84)	2.72 (2.21-3.18)	3.02 (2.40-3.54)	3.42 (2.66-4.01)	3.74 (2.84-4.39)
12-hr	1.07 (0.925-1.25)	1.35 (1.17-1.58)	1.70 (1.47-1.98)	1.98 (1.69-2.30)	2.35 (1.99-2.73)	2.64 (2.21-3.06)	2.94 (2.42-3.40)	3.24 (2.64-3.75)	3.64 (2.89-4.23)	3.95 (3.08-4.62)
24-hr	1.26 (1.12-1.44)	1.60 (1.43-1.84)	2.08 (1.84-2.37)	2.45 (2.16-2.79)	2.97 (2.60-3.38)	3.38 (2.94-3.84)	3.81 (3.28-4.33)	4.25 (3.63-4.83)	4.86 (4.09-5.53)	5.35 (4.45-6.10)
2-day	1.38 (1.22-1.58)	1.77 (1.56-2.02)	2.32 (2.05-2.65)	2.76 (2.43-3.15)	3.38 (2.95-3.84)	3.87 (3.35-4.40)	4.39 (3.77-5.00)	4.93 (4.21-5.62)	5.69 (4.78-6.50)	6.30 (5.23-7.22)
3-day	1.49 (1.32-1.69)	1.91 (1.69-2.17)	2.52 (2.22-2.86)	3.01 (2.64-3.41)	3.70 (3.23-4.19)	4.26 (3.69-4.82)	4.85 (4.18-5.50)	5.48 (4.68-6.22)	6.37 (5.36-7.24)	7.08 (5.90-8.08)
4-day	1.59 (1.41-1.81)	2.04 (1.81-2.32)	2.71 (2.39-3.06)	3.25 (2.86-3.67)	4.02 (3.52-4.54)	4.64 (4.04-5.24)	5.31 (4.59-6.00)	6.03 (5.15-6.82)	7.04 (5.93-7.97)	7.86 (6.56-8.94)
7-day	1.79 (1.57-2.04)	2.29 (2.02-2.61)	3.05 (2.68-3.47)	3.66 (3.20-4.16)	4.53 (3.94-5.14)	5.24 (4.53-5.94)	6.00 (5.14-6.80)	6.80 (5.79-7.74)	7.95 (6.67-9.05)	8.89 (7.37-10.2)
10-day	1.95 (1.73-2.22)	2.51 (2.22-2.85)	3.33 (2.93-3.77)	3.99 (3.50-4.51)	4.92 (4.29-5.56)	5.67 (4.92-6.40)	6.48 (5.58-7.32)	7.33 (6.26-8.29)	8.53 (7.19-9.66)	9.50 (7.92-10.8)
20-day	2.42 (2.14-2.74)	3.12 (2.76-3.53)	4.13 (3.65-4.67)	4.90 (4.31-5.53)	5.94 (5.21-6.71)	6.75 (5.89-7.62)	7.58 (6.58-8.57)	8.42 (7.27-9.54)	9.57 (8.19-10.9)	10.5 (8.87-11.9)
30-day	2.84 (2.51-3.21)	3.66 (3.25-4.14)	4.85 (4.28-5.46)	5.75 (5.07-6.46)	6.97 (6.12-7.84)	7.91 (6.91-8.89)	8.88 (7.72-9.98)	9.88 (8.53-11.1)	11.2 (9.61-12.7)	12.3 (10.4-13.9)
45-day	3.35 (2.97-3.78)	4.32 (3.84-4.88)	5.72 (5.07-6.45)	6.76 (5.97-7.62)	8.15 (7.17-9.19)	9.21 (8.06-10.4)	10.3 (8.96-11.6)	11.4 (9.85-12.9)	12.8 (11.0-14.6)	14.0 (11.9-15.9)
60-day	3.74 (3.33-4.21)	4.85 (4.31-5.46)	6.40 (5.68-7.20)	7.54 (6.67-8.48)	9.03 (7.96-10.2)	10.2 (8.91-11.4)	11.3 (9.86-12.7)	12.4 (10.8-14.0)	13.9 (12.0-15.7)	15.0 (12.9-17.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

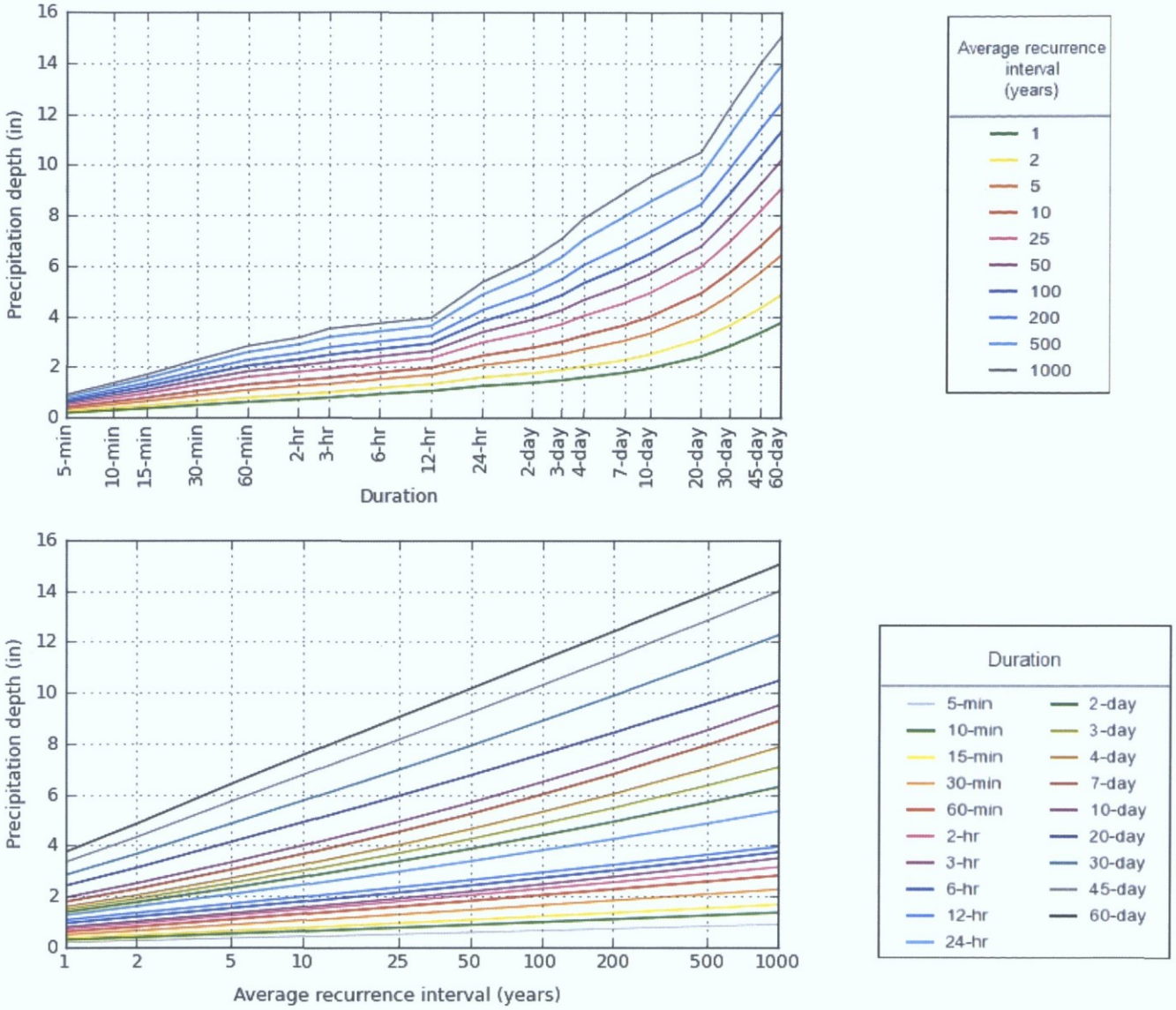
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 33.5866°, Longitude: -111.8341°



NOAA Atlas 14, Volume 1, Version 5 Created (GMT): Mon Nov 9 19:17:37 2015

Back to Top

Maps & aerials

Small scale terrain

Large scale terrain

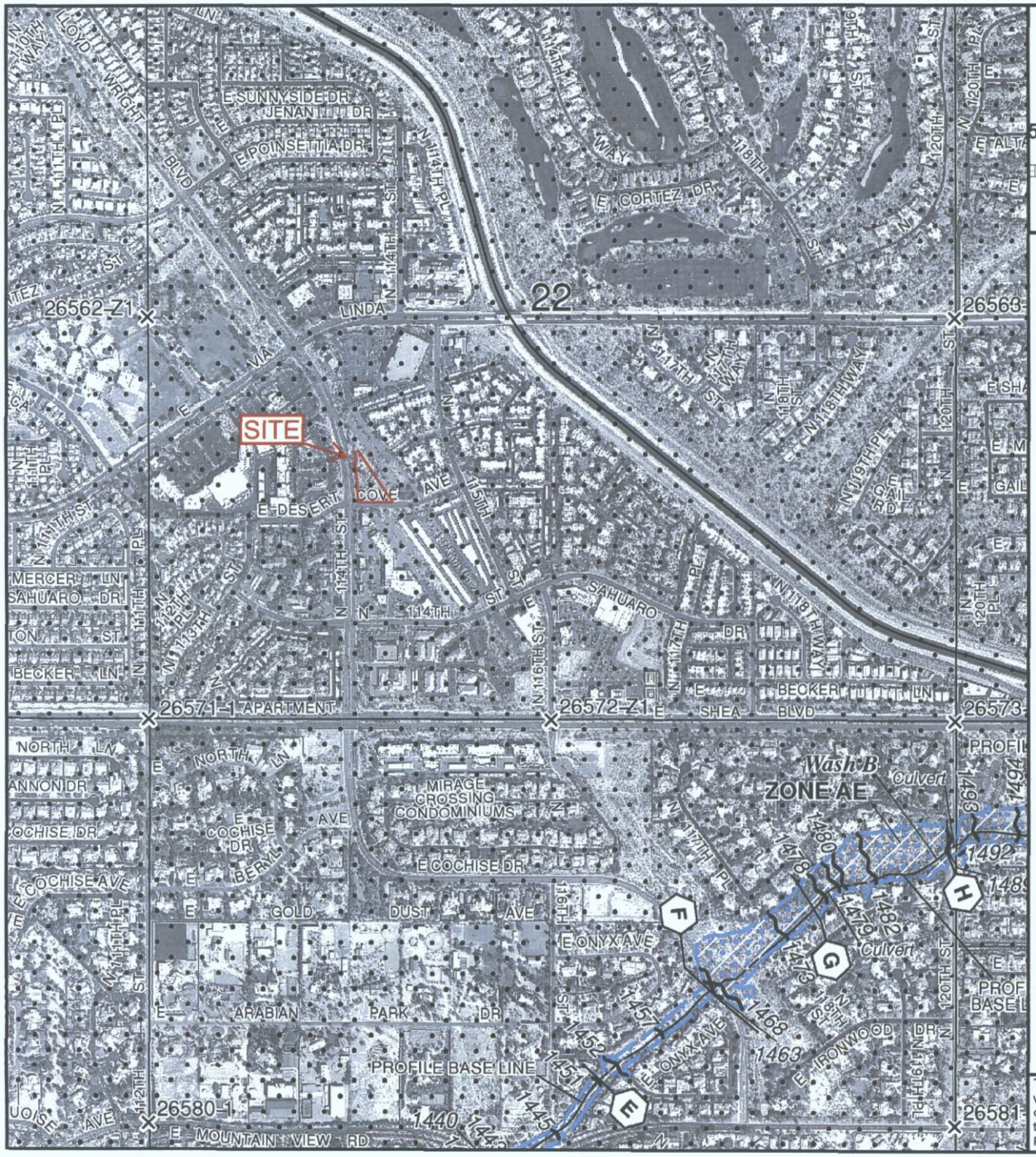
Large scale map

Large scale aerial

Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

METE

NFIP

PANEL 1780L

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 1780 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1780	L
SCOTTSDALE, CITY OF	045012	1780	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1780L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov